DEC 5 1987

GA1.13:RCED-85-113

BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Chairman, Committee On Energy And Natural Resources United States Senate

COMPLETED

Optional Development Strategies For The Strategic Petroleum Reserve

The Strategic Petroleum Reserve (SPR) was planned to store 750 million barrels of oil by 1991. Additional costs to reach this level are estimated at $9 billion. As a deficit reduction measure, the fiscal year 1986 budget proposes an indefinite moratorium on all future SPR activities--leaving the reserve with 489 million barrels of oil. GAO analyzed the budget proposal and five optional size strategies and noted that:

--Since the administration's proposal is less than 500 million barrels, annual Naval Petroleum Reserve (NPR) revenues, totaling about $1 billion, could be lost. This could occur because the Energy Security Act tied a minimum 500-million-barrel SPR to continued production and sale of NPR oil.

--Storage development savings for a 750-million-barrel reserve are relatively small--$576 million--compared to $7.6 billion in savings resulting from slowing or stopping oil purchases.

--Maintaining SPR facilities during a moratorium would cost about $689 million over the next 5 years. However, additional storage capacity could be added at incremental costs ranging from $6 million to $539 million for a 500-million- and 750-million-barrel reserve, respectively.

The decision before the Congress on the size and fill rate of the SPR revolves very much around the value associated with the immediate need to reduce the budget deficit as contrasted with the need to pursue the objective of a 750-million-barrel reserve.

GAO/RCED-85-113
APRIL 22, 1985

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RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B-208196

The Honorable James A. McClure
Chairman, Committee on Energy
and Natural Resources
United States Senate

Dear Mr. Chairman:

As requested in your February 25, 1985, letter and subsequent discussions with your office, this report provides an analysis of optional development strategies for the Strategic Petroleum Reserve (SPR). To help reduce the budget deficit, the administration has proposed an indefinite moratorium on SPR oil fill and site development after September 30, 1985, limiting the SPR to 489 million barrels. Given the general acceptance that a 750-million-barrel reserve is still a viable national objective, the proposal raises questions concerning the impact that other options would have on budget savings for site development and oil purchases.

We analyzed the 489-million-barrel reserve proposed by the administration and the budgetary implications for a 550-, 610-, and 750-million-barrel SPR. These latter amounts parallel DOE's design and construction plans. In addition, we analyzed a 500-million-barrel SPR because this minimum level is legislatively mandated for continued Naval Petroleum Reserve (NPR) production. The NPR at Elk Hills, California, is the second largest oil-producing field in the United States--and the largest in the lower 48 states. Section 802 of the Energy Security Act provides that no portion of the U.S. share of crude oil in the NPR may be sold during any fiscal year unless the SPR is filled during that fiscal year at an average of at least 100,000 barrels per day until the quantity of oil in the SPR is at least 500 million barrels.

The administration's previous plan to develop and fill the SPR to the 550-million-barrel level by fiscal year 1987 and to 750 million barrels by fiscal year 1991 has always been supported by the Congress. For the last few years, the SPR has been the key component of the country's energy emergency preparedness plan in the event of a major oil supply disruption. Further, the SPR's size and use are linked to the country's commitment as a member of the International Energy Agency (IEA). Under the IEA agreement, the United States must maintain emergency reserves equal to 90

days of the previous year's net oil imports and in the event of a disruption might find it necessary to use SPR oil to meet a possible allocation obligation to the IEA. Therefore, as the SPR's size increases, so does its potential to meet both domestic needs and mitigate adverse economic impacts, such as lost economic growth and increased inflation and unemployment, as well as our international commitments under the IEA agreement.

The attached briefing document presents information on the costs and status of the various SPR size options; time period over which each of the options would provide a 90-day supply of oil to offset net import reductions; and potential impact that each SPR option has on dampening the expected increase in oil prices resulting from a supply disruption.

Our analyses indicated that the decision before the Congress on the size and fill rate of the SPR revolves very much around the value associated with the immediate need to reduce the budget deficit as contrasted with the need to pursue the objective of a 750-million-barrel reserve. Our analyses show that:

--A 489-million-barrel reserve requires the lowest level of expenditures of any of the options but could result in revenue losses of over $1 billion annually if NPR sales are restricted. However, for an expenditure of $318 million, DOE could develop the storage facilities and fill the SPR to the 500-million-barrel level and negate the concern about continued NPR production and sales.

--Incremental costs to develop SPR storage facilities up to 610 million barrels amount to about $129 million. An additional $447 million would be needed during the next 5 years to develop the storage facilities for a 750-million-barrel reserve.

--Large budget savings for a 750-million-barrel reserve come from decreased oil fill, not from stopping facilities development--$7.6 billion compared to $576 million. Therefore, serious consideration should be given to continued development of storage facilities for 750 million barrels but keeping the oil fill rate flexible.

We also noted that completing facility development and oil fill for a 750-million-barrel SPR, as compared to a smaller 489-million-barrel reserve,

--would increase the SPR drawdown rate from 3.0 to 4.5 million barrels of oil per day,

--would provide an additional 8 years of time that the SPR would provide a 90-day supply of net oil imports--from 1986 to 1994, and

--has the potential for reducing expected oil price increases during a disruption by 42 percent--12 percent more than the smaller reserve--because of the higher daily drawdown rate and the larger inventory.

Regarding the relationship between a minimum SPR size and continued NPR production, we testified and reported[1] that it may not be possible to completely shut-in, or stop, NPR oil production without risking major long-term damage to the oil field. The act provides that NPR sales can continue at a level necessary to prevent damage to the field or a reduction in the total quantity of oil that could ultimately be recovered. Consequently, completely stopping NPR production and sales may not be possible; however, the production and sales levels could be reduced far below the present levels.

On this matter, we noted the incongruity of the administration's depleting the NPR while at the same time indefinitely postponing SPR development and fill. We suggested in the previously mentioned testimony and report that the Congress may want to consider setting aside at least part of the NPR revenues for use in filling the SPR. In exchange for using NPR revenues, DOE could possibly designate a portion of the SPR for military use should a national emergency arise. A larger SPR inventory would provide the capability for releasing large quantities of oil to meet short-term needs during emergencies, whereas the NPR is capable of producing significantly lower quantities over a longer time period.

DOE is currently preparing a transition plan and associated cost estimates to put the proposed 489-million-barrel reserve in standby status for later development and oil fill. DOE expects to complete its transition plan by the end of April 1985.

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This report is based largely on information obtained from DOE, discussions with DOE and SPR contractor officials, and other work done at the request of your subcommittee. Although we did not attempt to verify all the information because of its preliminary nature and the uncertainties concerning the future of the SPR program, we did assess its reasonableness based on our past and current SPR work. Our work, with the above noted exceptions, was done in accordance with generally accepted government auditing standards.

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[1]Hearings before the Chairman, Subcommittee on Environment, Energy, and Natural Resources, House Committee on Government Operations, on March 15 and April 1, 1985; and Status of Strategic Petroleum Reserve Activities As Of March 31, 1985 (GAO/RCED-85-111, April 15, 1985)

In order to provide your committee with timely information for use in considering the administration's proposal, we did not obtain written agency comments on this report. However, some of the information is in our March 1985 quarterly report on the status of the SPR, on which DOE provided comments. These comments have been incorporated where appropriate.

During this review, DOE pointed out that some information is preliminary and more definitive data will be available after it completes its transition plan. Nevertheless, we believe that this report provides useful information for congressional deliberation about the proposed moratorium.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days from the date of its issuance.

Sincerely yours,

J. Dexter Peach
Director

BRIEFING DOCUMENT ON GAO'S ANALYSIS OF OPTIONAL DEVELOPMENT STRATEGIES FOR THE STRATEGIC PETROLEUM RESERVE

PREPARED AT THE REQUEST OF THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

THE STRATEGIC PETROLEUM RESERVE

- WAS CREATED BY ACT OF CONGRESS IN 1975 TO MITIGATE THE ADVERSE ECONOMIC EFFECTS OF ANOTHER OIL SUPPLY DISRUPTION
- IS COMPOSED OF 6 CRUDE OIL STORAGE SITES AS WELL AS FACILITIES TO RECEIVE AND DISTRIBUTE THE OIL
- WAS PLANNED TO STORE A MAXIMUM OF 750 MILLION BARRELS OF OIL--OIL INVENTORY TOTALED ABOUT 462 MILLION BARRELS AS OF MARCH 31, 1985
- HAS COST ABOUT $17 BILLION WITH AN ESTIMATED COMPLETION COST OF $26 BILLION
- HAS BEEN SUPPORTED BY BOTH THE CONGRESS AND THE ADMINISTRATION, ALTHOUGH THE ADMINISTRATION HAS GENERALLY OPTED FOR A SLOWER OIL FILL RATE

INTRODUCTION

The 1973 Arab oil embargo caused oil prices to triple, resulting in a loss of economic growth, increased inflation and unemployment, and balance of payment problems. As a result, the Congress in 1975 authorized (Energy Policy and Conservation Act) the creation of a Strategic Petroleum Reserve (SPR) to store up to 1 billion barrels of oil. Subsequently, the administration and the Congress agreed that a 750-million-barrel SPR would be developed by 1991, deferring any decision on the remaining 250 million barrels. The Department of Energy (DOE) implemented a three-phase plan to store 750 million barrels of oil as follows:

--Phase I is complete and includes about 260 million barrels of oil stored at five sites: Bryan Mound, Texas, and Bayou Choctaw, Sulphur Mines, West Hackberry, and Weeks Island, Louisiana.

--Phase II is scheduled for completion in 1987 and would increase the SPR's capacity to 550 million barrels by developing an additional 290 million barrels at three of the phase I sites (Bayou Choctaw, West Hackberry, and Bryan Mound).

--Phase III, which is scheduled for completion by 1991, has two increments: (a) expanding storage at Bayou Choctaw, West Hackberry, and Bryan Mound to increase the SPR's capacity to 610 million barrels and (b) developing a new site at Big Hill, Texas, to increase the capacity to 750 million barrels.

Although the Congress and both the current and prior administrations have supported a 750-million-barrel SPR, controversy over when this goal will be met has plagued the program. Further, while an average 300,000-barrel-per-day oil fill rate was anticipated, DOE has never achieved this, either because of limited permanent storage capacity or limited appropriations.

THE ADMINISTRATION'S FY 1986 BUDGET PROPOSAL FOR SPR DEVELOPMENT

- PLACES AN INDEFINITE MORATORIUM ON ALL FURTHER SITE DEVELOPMENT AFTER 9/30/85
- ANTICIPATES REDUCED BUDGET OUTLAYS BY $8 BILLION OVER THE NEXT 5 YEARS BY
  - --ELIMINATING FUTURE OIL PURCHASES
  - --LIMITING DISTRIBUTION ENHANCEMENTS
  - --REDUCING CONSTRUCTION/OPERATING COSTS
  - --REDUCING PERSONNEL COSTS
- DEFERS THE EXPENDITURE OF $1.098 BILLION FROM PRIOR APPROPRIATIONS UNTIL SOME FUTURE PERIOD

PROPOSAL TO LIMIT SPR SIZE

On December 11, 1984, the Secretary of Energy announced that DOE was considering a proposal to stop filling the SPR at the end of fiscal year 1985, when about 489 million barrels of oil would be in storage. According to the Secretary of Energy, the original SPR goal was to store the equivalent of a 90-day supply of net crude oil imports and a 489-million-barrel reserve fully satisfies both the domestic and international commitments. The administration's fiscal year 1986 budget proposal supports limiting the SPR's size to 489 million barrels, thereby reducing budget outlays by about $8.1 billion between fiscal years 1986 and 1990. About 94 percent of the reduced outlays would be oil purchase costs; the remainder results from construction, operating, and personnel cost reductions.

In addition, the proposed moratorium would defer about $1.098 billion of prior year appropriations until some future time. Of this amount, $271 million in construction and site development appropriations would be used for standby costs in fiscal years 1986 and 1987. The remaining $827 million of oil purchase appropriations would be held until DOE again began to fill the SPR.

HOWEVER, ACCORDING TO GAO'S ANALYSES, THE PROPOSED MORATORIUM ON SPR DEVELOPMENT COULD

- RESULT IN THE LOSS OF NPR OIL REVENUES OF ABOUT $1.12 BILLION PER YEAR, OR ABOUT $5.6 BILLION BETWEEN FISCAL YEARS 1986 and 1990

LOST NPR REVENUES

The Naval Petroleum Reserve (NPR) at Elk Hills, California, is the second largest oil-producing field in the United States--and the largest in the lower 48 states. The Energy Security Act (Public Law 96-294)[1] tied NPR production to a minimum SPR size. Section 802 of the Energy Security Act provides that no portion of the U.S. share of crude oil in the NPR may be sold during any fiscal year unless the SPR is filled during that fiscal year at an average of at least 100,000 barrels per day until the quantity of crude oil in the SPR is at least 500 million barrels.

Since a 489-million-barrel reserve is less than 500 million barrels, revenues from the sale of NPR oil would be affected. The government's share of NPR oil over the next 5 years is expected to average about $1.12 billion per year. Over the 1986-1990 period (when estimated reductions of SPR expenditures are $8.1 billion), lost sales of NPR oil could total about $5.6 billion. Therefore, the reductions from the administration's proposal could be about $2.5 billion rather than the $8.1 billion set out in the fiscal year 1986 budget.

Suspending SPR development at the same time that the NPR is being depleted compounds the effect on the nation's total oil reserve. In the event of a disruption, the nation may not have either NPR production or an adequate supply of SPR oil. Therefore, the Congress could consider funding at least part of SPR development and fill from NPR revenues to ensure a fill level at least equal to future NPR production. This would assure a greater supply of SPR oil--in the event the need arises.

[1]Amended the Energy Policy and Conservation Act which expires June 30, 1985. What the Congress decides on EPCA could affect this requirement.

IN ADDITION, DOE'S PROPOSED MORATORIUM WOULD

- LEAVE 30 OF THE 49 PHASE II AND PHASE III CAVERNS IN DIFFERENT STAGES OF DEVELOPMENT AND OIL FILL
- LIMIT WITHDRAWAL OF SPR OIL TO 3.0 MILLION BARRELS PER DAY
- PROVIDE A 90-DAY SUPPLY TO OFFSET NET IMPORTS ONLY THROUGH 1986

PROGRAMMATIC IMPACTS OF THE PROPOSED MORATORIUM

The proposed 489-million-barrel moratorium leaves both phase II and phase III cavern development at three sites incomplete and 14 caverns at the Big Hill site in the first stage of construction--30 of the 49 caverns would be in various stages of development and oil fill. The status of cavern development at the four sites as of September 30, 1985, is shown in the following table.

Site	Total caverns	Number full	Number in final fill	Number in leach/fill	Number in initial leaching	Number in construction
West Hackberry	17	9	2	1	5	
Bryan Mound	16	10	2	2	2	
Bayou Choctaw	2[a]					2
Big Hill	14					14

[a]Status of a 10-million-barrel cavern is uncertain.

These incomplete sites pose problems for DOE with respect to maintenance, security, and cavern integrity.

In addition, DOE estimates that it could withdraw only about 3.0 million barrels per day from a 489-million-barrel SPR. However, DOE can currently distribute only about 2.4 million barrels of this amount. To alleviate this situation, DOE has plans to enhance this distribution capability by constructing a pipeline from one site to existing refinery complexes and improving an existing terminal. These enhancements would allow a total of 3.25 million barrels per day to be distributed from the reserve--about equal to the drawdown capability of a 550-million-barrel reserve.

At the 1985 projected level of net imports--4.85 million barrels per day--a 489-million-barrel reserve could supply about 101 days of oil. However, imports are projected to progressively increase to 8.65 million barrels per day by 1995. As a result of projected increases in imports, a 489-million-barrel SPR would provide a 90-day supply only through 1986.

AN SPR MORATORIUM WOULD ALSO

- COST A MINIMUM OF
  - --$689 MILLION FOR BASIC STANDBY COSTS BETWEEN FISCAL YEARS 1986 and 1990
  - --$32 MILLION TO COMPLETE DISTRIBUTION ENHANCEMENTS
- LEAVE ABOUT $20 MILLION OF NEW, UNTESTED EQUIPMENT AT THE BIG HILL SITE TO BE MAINTAINED IN ACCEPTABLE CONDITION FOR RESTART

MORATORIUM COSTS

Even with the proposed moratorium, the sites must be secured and guarded; pumps and valves already in place must be maintained to protect against corrosion; and equipment already at the Big Hill site would have to be stored. For the 5-year period--fiscal years 1986-90--DOE estimates it could cost about $689 million to maintain the six sites in standby condition. Although DOE included Big Hill costs in this estimate, DOE officials told us that the total cost of placing Big Hill in standby is uncertain and would depend on the storage and maintenance options selected and the length of time the moratorium continues. Further, the proposed moratorium does not eliminate the need for DOE to complete distribution enhancements for a 489-million-barrel SPR totaling about $32 million.

By September 30, 1985, DOE will have about $10 million worth of pipe and well casings at the Big Hill site and nearly $20 million worth of equipment such as pumps, motors, valves, and electrical, electronic, and telecommunication components. If the Congress approves the moratorium, the piping and equipment would be placed in standby condition and would have to be maintained over an indefinite period of time. However, each of the components within these two broad categories of piping and equipment requires its own type and frequency of maintenance.

Although the means of controlling corrosion in the pipes is well known, maintaining the $20 million worth of equipment presents a much more difficult problem. For example, the length of time the equipment can be safely stored in a reusable condition is uncertain. If properly maintained, the more substantial items such as pumps, motors, and valves could last for 20 years. However, some of the "high-tech" equipment, such as electronic components for switching and control panels, could begin to lose reliability after about 5 years. Some electrical equipment may require replacement after 8 to 10 years of storage.

GAO ANALYZED 5 SITE DEVELOPMENT OPTIONS TO THE PROPOSED 489-MILLION-BARREL MORATORIUM

- DEVELOP AND FILL AN ADDITIONAL 11 MILLION BARRELS OF CAPACITY FOR A TOTAL OF 500 MILLION BARRELS
- DEVELOP AND FILL TO 550 MILLION BARRELS
- DEVELOP AND FILL TO 610 MILLION BARRELS
- DEVELOP AND FILL TO 750 MILLION BARRELS
- DEVELOP 750 MILLION BARRELS OF CAPACITY BUT FILL ONLY TO 500 MILLION BARRELS

ALTERNATIVE SIZES CONSIDERED

We compared the proposed 489-million-barrel SPR moratorium with continued development for a 500-, 550-, 610-, and 750-million-barrel SPR. We selected the 500 million barrels because this amount is needed for the government to continue producing its share of Naval Petroleum Reserve oil. We selected 550, 610, and 750 million barrels because these amounts paralleled DOE's design and construction plans for the SPR.

During the course of this review, DOE's Deputy Assistant Secretary for SPR told us that the originally planned 550-million-barrel option is not the same option under which DOE is currently operating. The 550 million barrels would be realized by developing certain phase III caverns but delaying development of some phase II caverns until the SPR advances to the 610-million-barrel option. The rationale is that the phase III caverns at Bryan Mound are further along in development than the phase II caverns at West Hackberry and Bryan Mound. Therefore, the information presented in this briefing document for a 550-million-barrel reserve is based on DOE's current definition of this option.

In considering the 750-million-barrel SPR, we also assessed the possibility of DOE's continuing with facility development for a 750-million-barrel reserve but limiting the amount of oil to 500 million barrels. The information on these options is mainly based on DOE data and has not been validated. We did, however, assess its reasonableness based on our past and current SPR work.

ASSUMPTIONS USED IN ANALYZING OPTIONS

- DOE WILL NOT FILL THE SPR BEYOND 489 MILLION BARRELS
- OPTIONAL DEVELOPMENT PLANS WILL PROCEED WITH MINIMUM OF LOST TIME BETWEEN CURRENT PHASEDOWN ACTIVITIES AND REACTIVATION
- DOE'S PROJECTED PRICES FOR SPR OIL WILL PREVAIL
- ENERGY INFORMATION ADMINISTRATION'S MID-CASE SCENARIO FOR NET OIL IMPORT ESTIMATES WILL PREVAIL
- SPR WOULD BE DRAWN DOWN EARLY, AT THE DESIGN RATE, AND, IF NEEDED, BE PUMPED TO CAPACITY
- THE ENERGY POLICY AND CONSERVATION ACT REQUIREMENTS WILL BE EXTENDED

ASSUMPTIONS USED

In conducting this analysis, we assumed that during fiscal year 1985 DOE would develop caverns and fill only to the 489 million barrels set out in the budget proposal and that the optimal development plans for a 550-, 610-, and 750-million-barrel reserve could proceed within the same time frames as DOE projected prior to the proposed moratorium. The proposed moratorium already has resulted in the cancellation of contracts for certain construction activities at Big Hill and there would be a delay in reactivating them in the event the Congress does not agree to the moratorium. Since DOE could not provide definitive information on what the actual time delays could be, for analytical purposes we assumed there would be no delay and that development and fill activities could occur within the time frames DOE originally projected.

Further, our calculations of (1) SPR oil costs are based on projected prices DOE used in its fiscal year 1986 budget process and (2) number of days the SPR could offset net oil imports are based on the Energy Information Administration's--the independent statistical and analytical agency within DOE--mid-case projection. We also assumed that all SPR oil could and would be withdrawn. We did not consider what use, if any, the Secretary of Energy would make of the monthly maximum 10-percent directed sales provision set out in DOE's 1982 drawdown plan for the SPR (the plan provides that 10-percent of any oil drawndown that month may be distributed at the discretion of the Secretary of Energy). Further, we did not assess whether SPR oil could be distributed in a timely, efficient manner in the event of a disruption. We did, however, assume that the Energy Policy and Conservation Act--which authorized the SPR and is due to expire in June 1985--would, in some way, be extended by the Congress.

OPTION 1

DEVELOP AND FILL AN ADDITIONAL 11 MILLION BARRELS OF STORAGE SPACE FOR A TOTAL FILL OF 500 MMB

TOTAL COST (1986-90): $1.039 BILLION

BASIC COSTS:

- $689 MILLION FOR STANDBY COSTS
- $ 32 MILLION FOR DISTRIBUTION ENHANCEMENTS

ADDITIONAL COSTS:

- $312 MILLION FOR OIL PURCHASES
- $1.5 MILLION TO $6.2 MILLION FOR STORAGE CAPACITY DEPENDING ON FY 1985 LEACHING PROGRAMS

DEVELOP AND FILL FOR 500-MILLION-BARREL CAPACITY

It would cost about $318 million to develop storage and add 11 million barrels of oil to reach 500 million barrels. About $312 million would be needed to purchase oil and a maximum of about $6 million to develop the necessary storage capacity not completed in fiscal year 1985.

DOE planned to have about 500 million barrels of storage capacity available by September 30, 1985, but to limit fill to 489 million barrels. Reductions in the current budget or equipment problems at the storage sites during the rest of fiscal year 1985 could bring the actual capacity available closer to 489 million barrels. If this happens, it would cost about $6 million to complete the storage space for the 500 million barrels required under this option. The minimum cost of $1.5 million would result if DOE could run a temporary oil fill pipeline to an existing--but empty--10-million-barrel cavern at Bayou Choctaw.

This option does not reduce the estimated $689 million to maintain the six sites in standby condition during fiscal years 1986-90 nor the $32 million budgeted for fiscal year 1986 to complete the distribution enhancements for a 489-million-barrel reserve. Completion of these enhancements will increase SPR distribution capability from 2.4 million barrels per day to 3.25 million barrels per day.

OPTION 1 (CONT.)

WHAT WOULD BE ACCOMPLISHED:

- NPR SALES COULD CONTINUE--NO REVENUE LOSS
- PARTIALLY FILLED CAVERNS COULD BE COMPLETED AND PREPARED FOR DRAWDOWN
- DRAWDOWN FLEXIBILITY WOULD BE ENHANCED
- COMPLETION COULD OCCUR BY EARLY PART OF FY 1986

WHAT WOULD NOT BE ACCOMPLISHED:

- MOST OF THE 30 CAVERNS WOULD BE UNFINISHED

STATUS OF A 500-MILLION-BARREL SPR

The primary advantage of this option is that it would meet the Energy Security Act requirement for continued Naval Petroleum Reserve production--eliminating revenue losses of about $1.1 billion annually. Further, a 500-million-barrel SPR allows DOE to completely fill four caverns at Bryan Mound and West Hackberry that would only be partially filled under the proposed moratorium. As the number of filled caverns increases, DOE has greater flexibility to meet its drawdown needs. For example, DOE not only has more caverns from which to withdraw oil but also has greater flexibility in how much oil to withdraw from each cavern and the type of oil to be withdrawn. This option could be completed during fiscal year 1986. Other than these advantages, a 500-million-barrel SPR has much of the same impacts as a 489-million-barrel reserve.

This option would still leave 26 unfinished caverns--compared to 30 under the proposed moratorium--in various stages of development and fill that DOE would have to maintain and secure for future restart.

OPTION 2

CONTINUE SPR DEVELOPMENT AND OIL FILL UNTIL THE PHASE II OBJECTIVE OF 550 MMB IS ACHIEVED

TOTAL COST (1986-90): $2.410 BILLION

BASIC COSTS:

- $689 MILLION FOR BASIC STANDBY COSTS
- $32 MILLION FOR DISTRIBUTION ENHANCEMENTS

ADDITIONAL COSTS:

- $1.646 BILLION FOR OIL PURCHASES
- $43 MILLION FOR CONSTRUCTION AND CAVERN DEVELOPMENT

DEVELOP AND FILL 550 MILLION BARRELS

To develop and fill a 550-million-barrel reserve would cost about $1.7 billion--$1.64 billion to purchase oil and $43 million to construct and develop storage capacity. To obtain this oil-fill level, DOE would develop an additional 61 million barrels of cavern space at Bryan Mound, West Hackberry, and Bayou Choctaw. DOE could complete all caverns at the Bryan Mound site, including the four phase III caverns and leave some phase II caverns at West Hackberry incomplete. Most of the $43 million would be for electricity to operate the equipment and the rest for additional operating and maintenance personnel until the cavern space was completed and filled with oil.

As in the case of option 1, this option does not eliminate the need to budget $689 million for basic standby costs over a 5-year period nor the $32 million to complete distribution enhancements that are required to increase DOE's distribution capability for SPR oil.

OPTION 2 (CONT.)

WHAT WOULD BE ACCOMPLISHED:

- INCREASES OPTIONS FOR TYPE OF OIL STORED, WHICH CAVERNS AND SITES TO COMPLETE, AND DRAWDOWN LEVELS TO ACHIEVE
- COULD BE COMPLETED BY FY 1987 AS PLANNED
- HELPS INCREASE DAMPENING EFFECT ON OIL PRICES
- PROVIDES A 90-DAY SUPPLY OF OIL TO OFFSET NET IMPORT REDUCTIONS THROUGH 1988

WHAT WOULD NOT BE ACCOMPLISHED:

- SOME CAVERNS WOULD STILL BE UNFINISHED
- SOME COSTS TO PUT SITES IN STANDBY WOULD REMAIN

STATUS OF A 550-MILLION-BARREL SPR

The extra 61 million barrels of oil that are available with a 550-million-barrel SPR would allow DOE to tailor its oil inventory to meet future refinery needs. It would also allow DOE to (1) fill five caverns at Bryan Mound and Bayou Choctaw, increasing its flexibility for how much and what type of oil to withdraw in the event of a disruption, (2) increase the expected daily withdrawal rate from 3.0 million to 3.25 million barrels per day, and (3) meet its plans for a 550-million-barrel SPR by fiscal year 1987.

In addition, a 550-million-barrel reserve withdrawn at 3.25 million barrels per day could supply oil for 169 days--compared to 163 days for a 489-million-barrel reserve withdrawn at 3.0 million barrels per day. During the time the 550 million barrels are released onto the market, energy price increases could be reduced by about 32 percent--compared to 30 percent for a 489-million-barrel SPR. This occurs because 61 million more barrels of oil would be available and would be withdrawn at a higher daily rate than a 489-million-barrel reserve. Further, at projected net oil import levels, this option would provide a 90-day supply of oil through 1988--compared to 1986 for a 489-million-barrel reserve.

However, this option still leaves 21 of the 49 caverns unfinished and does not eliminate costs for site standby activities. These caverns pose problems for DOE with respect to maintenance, security, and cavern integrity which increase the longer the moratorium continues.

OPTION 3

CONTINUE DEVELOPMENT OF ALL SITES EXCEPT BIG HILL AND FILL TO 610 MMB

TOTAL COST (1986-90): $4.323 BILLION

BASIC COSTS:

- $32 MILLION FOR DISTRIBUTION ENHANCEMENTS
- $689 MILLION FOR BASIC STANDBY COSTS

ADDITIONAL COSTS:

- $3.457 BILLION FOR OIL PURCHASES
- $129 MILLION FOR CONSTRUCTION AND CAVERN DEVELOPMENT
- $16 MILLION FOR ADDITIONAL DISTRIBUTION ENHANCEMENTS

DEVELOP AND FILL TO 610 MILLION BARRELS

To develop and fill a 610-million-barrel reserve would cost about $3.6 billion--$3.5 billion to purchase oil and $129 million to develop storage capacity. This option requires DOE to develop 121 million additional barrels of storage capacity compared to a 489-million-barrel SPR. Under this option, however, all caverns at Bryan Mound, West Hackberry, and Bayou Choctaw would be completed and filled with oil. To develop the remaining caverns at these three sites, DOE would incur some facility construction costs in addition to costs for electricity and operating and maintenance personnel at the sites.

To take advantage of the additional oil inventory and drawdown capability under this option, DOE would also have to improve the distribution system for the oil stored at Bayou Choctaw at a cost of about $5 million. This would increase DOE's total distribution capability from 3.25 million barrels per day to 3.5 million barrels per day, thus accommodating the higher drawdown rate. To provide additional flexibility in distributing the added quantity of oil at West Hackberry, DOE would probably construct a pipeline from West Hackberry to a refinery complex at Lake Charles, Louisiana, at an estimated cost of $11 million.

Further, this option does not eliminate the estimated $689 million in standby costs nor $32 million needed for distribution enhancements for a 489-million-barrel reserve.

OPTION 3 (CONT.)

WHAT WOULD BE ACCOMPLISHED:

- ALL CAVERNS AT 5 SITES WOULD BE FILLED AND SITES COULD BE PUT IN PERMANENT STANDBY CONDITION
- INCREASED DRAWDOWN RATE
- PROVIDES A 90-DAY SUPPLY OF OIL TO OFFSET NET IMPORT REDUCTIONS THROUGH 1990
- HELPS INCREASE DAMPENING EFFECT ON OIL PRICES

WHAT WOULD NOT BE ACCOMPLISHED:

- BIG HILL STANDBY COSTS WOULD STILL BE INCURRED
- FINAL 10 MMB OF CAPACITY WOULD NOT BE FILLED UNTIL FY 1989

STATUS OF A 610-MILLION BARREL SPR

This option has several advantages. First, all of the initial five sites would be completed, filled with oil, and available for drawdown in the event of a disruption. Second, budget outlays would be reduced by about $4.6 billion since the sixth site--Big Hill--would not be developed.

Third, as the SPR increases in size, so does DOE's expected drawdown rate. A 610-million-barrel SPR provides 121 million more barrels of oil that could be withdrawn at a higher daily rate than a 489-million-barrel SPR--3.5 million barrels per day compared to 3.0 million barrels. If the 610 million barrels were withdrawn at a rate of 3.5 million barrels per day, the reserve could supply oil for 174 days--compared to 163 days withdrawn at 3.0 million barrels per day for a 489-million-barrel reserve. Fourth, during the time the 610 million barrels were released onto the market, energy price increases could be reduced by about 35 percent compared to 30 percent for a 489-million-barrel reserve. Fifth, at projected net oil import levels, this option would provide a 90-day supply of oil through 1990 compared to 1986 for a 489-million-barrel reserve.

This option does not, however, eliminate the costs for stand-by activities associated with Big Hill (estimated to be $3.5 million between fiscal years 1986 and 1989 and $0.7 million thereafter). In addition, the final 10 million barrels of capacity for this option would not be completed until 1989--1 year after 600 million barrels of capacity are developed and filled.

OPTION 4

COMPLETE ALL 6 SITES AS ORIGINALLY PLANNED AND FILL TO 750 MMB

TOTAL COST (1986-90): $8.959 BILLION

BASIC COSTS:

- $689 MILLION FOR BASIC STANDBY COSTS
- $32 MILLION FOR DISTRIBUTION ENHANCEMENTS

ADDITIONAL COSTS:

- $7.662 BILLION FOR OIL PURCHASES
- $538 MILLION FOR CONSTRUCTION AND CAVERN DEVELOPMENT
- $38 MILLION FOR DISTRIBUTION ENHANCEMENTS

750-MILLION-BARREL SPR WITH 750 MILLION BARRELS OF OIL

To develop and fill a 750-million-barrel reserve would cost about $8.2 billion--$7.6 billion for oil, $538 million to complete storage development, and $38 million for distribution enhancements. This option is the most costly because it involves developing not only the remaining 121 million barrels of cavern capacity at Bryan Mound, West Hackberry, and Bayou Choctaw but also a major part of the construction and cavern development for the 140 million additional barrels of capacity at Big Hill. Further, additional distribution capability enhancements will be needed once Big Hill is operational.

This option does not eliminate the estimated $689 million in standby costs nor the $32 million needed for distribution enhancements for a 489-million-barrel reserve.

OPTION 4 (CONT.)

WHAT WOULD BE ACCOMPLISHED:

- ALL SITES WOULD BE COMPLETED AND COULD BE PLACED IN PERMANENT STANDBY STATUS
- WOULD ALLOW MAXIMUM USE OF EQUIPMENT AND PERSONNEL ALREADY AT SITES
- WOULD MINIMIZE DAMAGE TO EQUIPMENT RESULTING FROM A PROLONGED MORATORIUM
- ALLOWS MAXIMUM DRAWDOWN OF 4.5 MMB/DAY
- HELPS INCREASE DAMPENING EFFECT ON OIL PRICES
- PROVIDES A 90-DAY SUPPLY OF OIL TO OFFSET NET IMPORT REDUCTIONS THROUGH 1994
- WOULD PROVIDE ADDITIONAL OIL SUPPLIES TO MEET EXTERNAL COMMITMENTS WITHOUT JEOPARDIZING DOMESTIC SUPPLIES

STATUS OF A 750-MILLION-BARREL SPR WITH 750 MILLION BARRELS OF OIL

By completing the entire 750-million-barrel reserve, DOE could place all six sites in drawdown status, thereby reducing personnel and operating costs. Further, continued development allows the maximum use of equipment and personnel already at the sites and minimizes storage and possible damage to equipment resulting from a lengthy moratorium. A moratorium beyond 1 year increases the potential for equipment damage or deterioration which would affect its usefulness in the event of restart at some future time.

Further, a 750-million-barrel reserve provides an additional 261 million barrels of oil which could be withdrawn at a rate of 4.0 million barrels per day and affords the opportunity, according to DOE officials, to increase the daily drawdown rate to 4.5 million barrels in the future with future distribution enhancements. It also provides additional oil supplies to meet both domestic and international commitments. For example, 750 million barrels of oil drawn down at a rate of 4.0 million barrels per day could supply oil for about 187 days--compared to 163 days for a 489-million-barrel reserve withdrawn at 3.0 million barrels per day. During the time the 750 million barrels are released onto the market, energy price increases could be reduced by 42 percent compared to 30 percent for a 489-million-barrel SPR. In addition, at projected net oil import levels, this option would provide a 90-day supply of oil until 1994 compared to 1986 with a 489-million-barrel reserve.

Further, as a member of the International Energy Agency (IEA), the United States might have to share oil with other member countries. Using 1981 data and specific disruption assumptions, an IEA test conducted in 1983 estimated that this initially could have amounted to about 1.3 million barrels per day. The United States also has an agreement with the country of Israel to provide oil during a supply disruption. The larger reserve should provide greater assurance that there is sufficient oil to meet both domestic demands and international commitments.

OPTION 5

COMPLETE ALL CAVERN AND SITE DEVELOPMENT FOR A 750-MMB RESERVE BUT LIMIT OIL FILL TO THE 11 MMB NEEDED TO REACH THE 500-MMB INVENTORY LEVEL

TOTAL COST (1986-90): $1.610 BILLION

BASIC COSTS:

- $689 MILLION FOR BASIC STANDBY COSTS
- $32 MILLION FOR DISTRIBUTION ENHANCEMENTS

ADDITIONAL COSTS:

- $538 MILLION FOR CONSTRUCTION AND CAVERN DEVELOPMENT
- $312 MILLION FOR OIL FILL TO 500 MMB
- $38 MILLION FOR DISTRIBUTION ENHANCEMENTS TO ACHIEVE A 4.0-MMB RATE
- $1 MILLION TO RECONFIGURE CAVERN PIPING

750-MILLION-BARREL SPR WITH 500 MILLION BARRELS OF OIL

To develop storage capacity for 750 million barrels but fill only to 500 million barrels would cost about $888 million--$312 million for oil purchases, $538 to develop storage space, $38 million to complete distribution enhancements, and $1 million to reconfigure cavern piping so that cavern development could be independent of oil fill. This option would require the same storage space development as option 4. The remaining 121 million barrels of cavern space at Bryan Mound, West Hackberry, and Bayou Choctaw would be developed at an estimated cost of $129 million and the development of 140 million more barrels of capacity at Big Hill would cost an additional $447 million--including a $38 million pipeline to improve the distribution capability from 3.25 million per day to 4.0 million barrels per day. The total development cost of $576 million would complete the planned 750-million-barrel SPR but leave 250 million barrels of unfilled capacity.

This option eliminates neither the estimated $689 million to maintain the six sites in standby condition between fiscal years 1986 and 1990 nor the $32 million for distribution enhancements for a 489-million-barrel SPR.

OPTION 5 (CONT.)

WHAT WOULD BE ACCOMPLISHED:

- ALL CAVERN DEVELOPMENT WOULD BE COMPLETED AND SOME EQUIPMENT COULD BE DISPOSED OF OR CONVERTED TO OIL FILL/WITHDRAWAL USE
- STORAGE SPACE WOULD BE AVAILABLE FOR A RANGE OF OIL FILL OPTIONS
- BUDGET SAVINGS WOULD RESULT WITH OPTION TO ADD OIL AT OPTIMUM PRICES
- POTENTIAL EQUIPMENT AND PERSONNEL PROBLEMS ASSOCIATED WITH A MORATORIUM WOULD BE AVOIDED

STATUS OF A 750-MILLION-BARREL SPR WITH 500 MILLION BARRELS OF OIL

The primary advantage of this option is that all storage capacity would be developed and available for fill at some future time. Having all of the 750 million barrels of storage capacity available would provide DOE a range of options for (1) the types of oil to be purchased, thereby tailoring purchases to future refinery needs, and (2) the rate at which the caverns would be filled. In addition, once the caverns are complete, DOE can inject oil at a much faster rate than it does when it is developing and filling the caverns simultaneously.

This option also captures a large portion of the budgetary savings the Congress is seeking by initially reducing expenditures by about $7.3 billion for oil purchases. However, once DOE begins to fill the additional capacity, oil purchase costs would be incurred. In addition, filling to 500 million barrels would meet the Energy Security Act requirements for continued production of Naval Petroleum Reserve oil while eliminating the potential equipment and personnel problems associated with a moratorium. For example, under the moratorium, DOE would have to maintain equipment with questionable assurance of its usability when development is restarted. Further, as a result of the proposed moratorium, DOE plans to reduce staff from 173 in fiscal year 1985 to 120 in fiscal year 1986 and further personnel reductions are possible. Operations, maintenance, and contractor staff already are being released and/or reduced. Replacing these people at some future date in a timely manner could be difficult.

THE POLLOWING CHARTS SUMMARIZE THE
COSTS AND ACCOMPLISHMENTS OF THE
FIVE SPR SIZE OPTIONS

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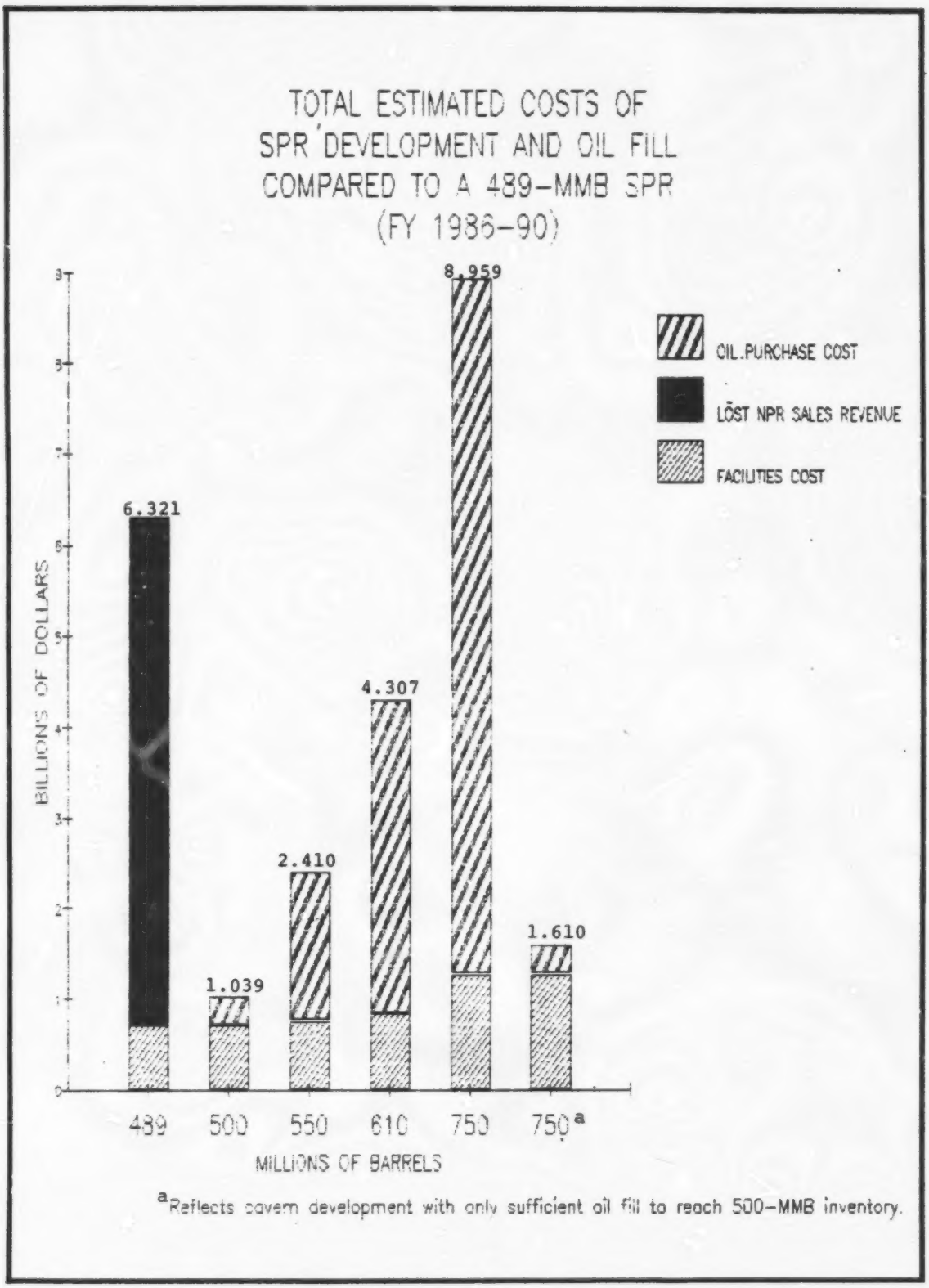


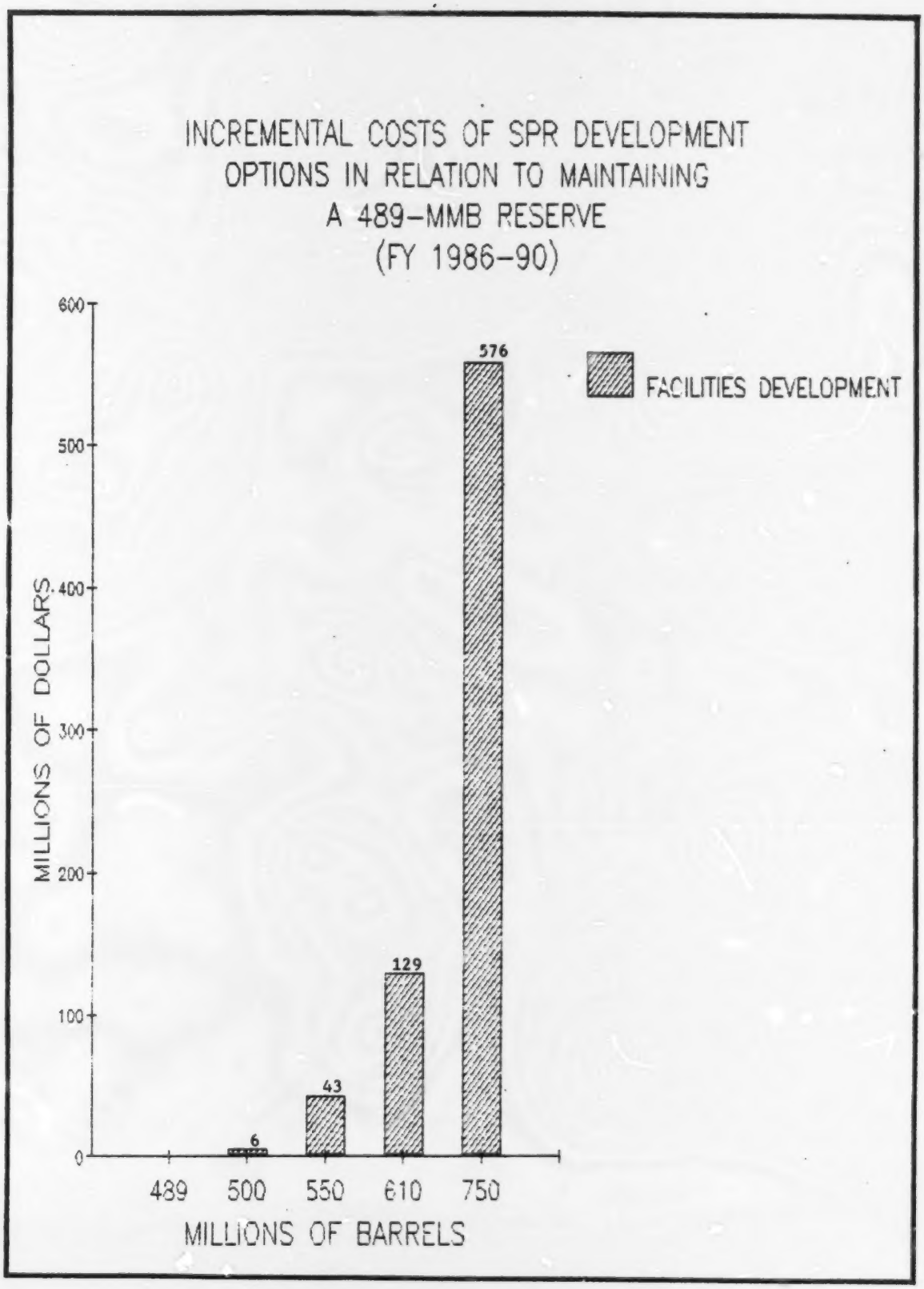
[a]Reflects cavern development with only sufficient oil fill to reach 500-MMB inventory.

TOTAL SPR COSTS

For any SPR size, DOE estimates it would cost about $689 million to maintain the existing facilities in standby condition between fiscal years 1986 and 1990. In addition, a fiscal year 1986 cost of $32 million for distribution enhancements would apply to all size options up to 610 million barrels, and an additional $38 million would be needed to complete distribution enhancements for a 750-million-barrel reserve. For the 489-million-barrel option, we have also included a potential $5.6 billion revenue loss from Naval Petroleum Reserve sales. The total costs for the various options are shown in the following table.

	SPR SIZE (MMB)					
Costs (FY 1986-1990)	489	500	550	610	750	750[a]
	(millions)					
Construction/cavern development	$ 0	$ 6	$ 43	$ 129	$ 538	$ 539
Distribution enhancements	32	32	32	48	70	70
Standby	689	689	689	689	689	689
Total	721	727	764	866	1,297	1,298
Oil acquisition and transportation	0	312	1,646	3,457	7,662	312
Total	721	1,039	2,410	4,323	8,959	1,610
Lost NPR oil sales	5,600	0	0	0	0	0
Total	$6,321	$1,039	$2,410	$4,323	$8,959	$1,610

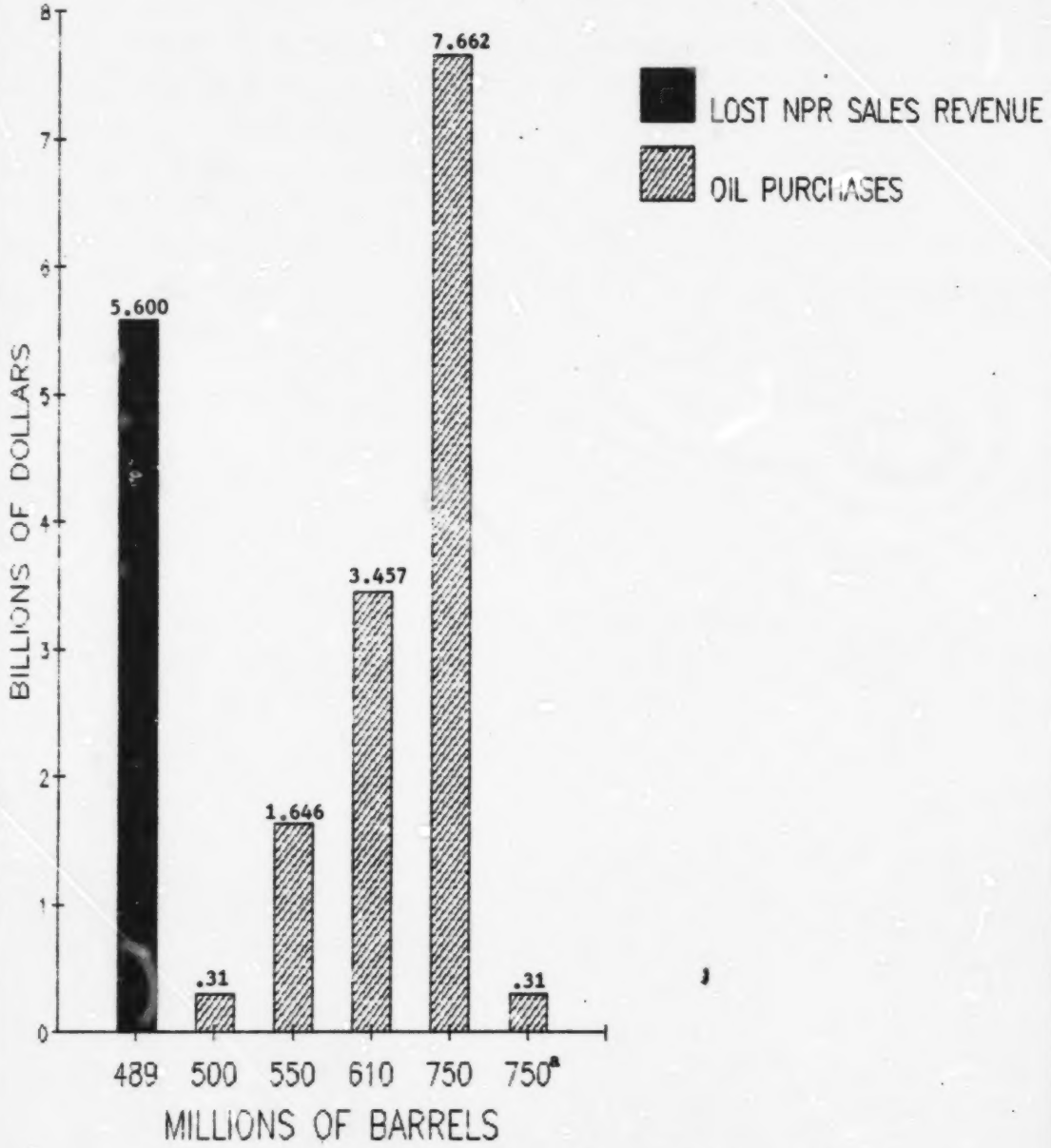
[a]Continued development but fill only to 500 million barrels.


INCREMENTAL COSTS OF SPR DEVELOPMENT
OPTIONS IN RELATION TO MAINTAINING
A 489-MMB RESERVE
(FY 1986-90)
600
500
400
300
200
100
0
MILLIONS OF DOLLARS
576
129
43
6
FACILITIES DEVELOPMENT
489
500
550
610
750
MILLIONS OF BARRELS

INCREMENTAL DEVELOPMENT COSTS

Additional storage space can be created and site development can be completed at a relatively small incremental cost above the basic $689 million standby cost. For example, the SPR inventory could be increased to 500 million barrels at an estimated maximum incremental cost of about $6 million. To go from 489 million barrels to 610 million barrels would require the expenditure of $129 million. The largest increment, an additional $447 million, would be needed to complete the entire 750-million-barrel SPR (including distribution enhancements). Overall, the cost for 750 million barrels of capacity and distribution enhancements would total $576 million between fiscal years 1986 and 1990. The last option--developing the full 750 million in capacity but limiting fill to 500 million barrels--would also require the maximum facility cost of $576 million.

INCREMENTAL COSTS OF SPR OIL PURCHASES COMPARED TO A 489-MMB RESERVE (FY 1986-90)



[a]Reflects cavern development with only sufficient oil fill to reach 500-MMB inventory.

OIL ACQUISITION COSTS

In contrast to site development costs, the incremental oil purchase costs for each option are considerably greater. For example, under the 610-million-barrel option, oil purchase costs could be about $4.4 billion compared to $129 million for site development. Under the 750-million-barrel option, oil costs could be about $7.6 billion compared to $538 million for site development.

QUANTIFIABLE ACCOMPLISHMENTS OF THE VARIOUS SPR SIZE OPTIONS

- OIL AVAILABILITY IN THE EVENT OF A DISRUPTION
- ABILITY TO MEET INTERNATIONAL COMMITMENTS
- DAMPENING EFFECT ON OIL PRICE INCREASES IN THE EVENT OF A DISRUPTION

QUANTIFIABLE SPR ACCOMPLISHMENTS

The SPR could partially reduce the adverse economic impacts which result from a disruption. However, mitigating these impacts can be accomplished only if the oil is released or drawn down quickly and then introduced effectively into the market to replace lost supplies. DOE currently plans to release SPR oil early onto the market to keep price increases lower than they might otherwise be. Studies have shown that early, effective release of SPR oil could significantly dampen oil price shocks of a supply disruption. Perhaps the SPR's most important accomplishment is as an insurance policy that may reduce the likelihood of future disruptions.

Some accomplishments are quantifiable, such as the dampening effect of the SPR on energy price increases; others are not, such as reducing the likelihood of a disruption. In addition, SPR accomplishments are related to its size. As the size of the SPR increases, its ability to mitigate the impacts of a disruption also increases. Not only is there more oil available with a larger reserve, but also the rate at which the oil could be put into the marketplace rises.

COMPARISON OF BENEFITS DERIVED FROM OIL AVAILABILITY UNDER SPR DEVELOPMENT OPTIONS

	SPR SIZE (MMB)					
	489	500	550	610	750[a]	750[b]
DRAWDOWN RATE (MMB/D)	3.0	3.0	3.25	3.5	4.5	3.0
DISTRIBUTION CAPABILITY (MMB/D)	3.25	3.25	3.25	3.5	4.0	3.25
DAYS OF SUPPLY	163	166	169	174	187	166

[a]OIL AVAILABILITY LIMITED TO 4.0-MILLION-BARREL-PER-DAY DISTRIBUTION CAPABILITY

[b]REFLECTS CAVERN DEVELOPMENT WITH ONLY MINIMAL OIL FILL TO REACH 500-MMB INVENTORY

OIL AVAILABILITY

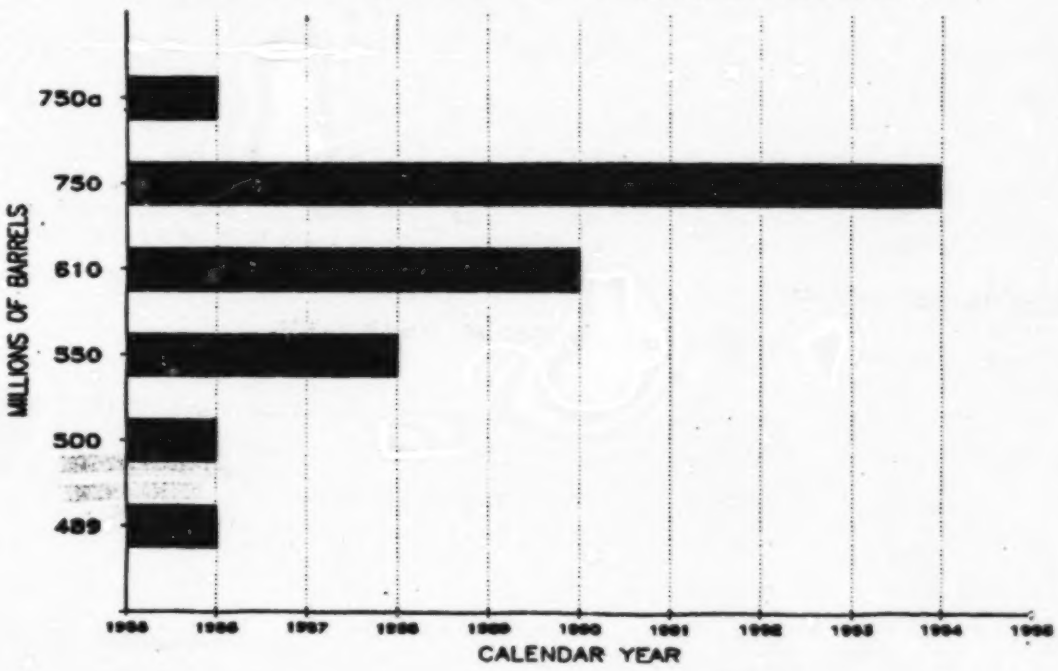
With a 489-million-barrel reserve, DOE expects to draw down and distribute SPR oil at a rate of 3.0 million barrels per day. If the entire 489 million barrels could be withdrawn, the SPR could supply oil for about 163 days. A larger SPR--610 or 750 million barrels--not only provides additional oil in the event of a disruption but also allows DOE to withdraw more barrels per day. For example, a 610-million-barrel SPR allows DOE to release and distribute 3.5 million barrels per day compared to 3.0 million barrels with a 489-million-barrel reserve; 750 million barrels allows 4.5 million barrels per day compared to 3.0 million.

DOE does, however, have the flexibility to withdraw and distribute a daily amount less than the maximum it currently estimates for each option. Assuming DOE would withdraw oil at the daily rate for a 489-million-barrel SPR--3.0 million barrels--the number of days a larger SPR could provide oil significantly increases. One of the major benefits of a larger reserve, however, is that more oil could be released on a day-to-day basis. Although the number of days of SPR supply does not increase as significantly as with a lower drawdown rate, the important fact is the increased quantity of SPR oil that could flow into the market on a daily basis. The following table compares the number of days of supply for the various size options, assuming a 3.0-million-barrel-per-day drawdown, and the number of days of supply with higher drawdown rates. In all cases we assumed that all oil could and would be withdrawn.

Size option	3.0-million-barrel-per-day drawdown rate	Higher drawdown rate
	(number of days)	
489 million	163	163[a]
500 million	167	167[a]
610 million	203	174[b]
750 million	250	187[c]

[a]Drawdown rate of 3.0 million barrels per day.
[b]Drawdown rate of 3.5 million barrels per day.
[c]Limited to distribution rate of 4.0 million barrels per day.

COMPARISON OF LAST YEAR IN WHICH OPTIONAL SPR INVENTORIES WOULD PROVIDE A 90-DAY SUPPLY OFFSET TO NET IMPORT REDUCTIONS



[a]Reflects cavern development with only minimal oil fill to reach 500-MMB inventory.

OFFSET TO IMPORT REDUCTIONS

As a member of the International Energy Agency (IEA), the United States is expected to maintain a reserve equal to 90 days of the previous year's net oil imports. Based on the Energy Information Administration's (EIA's) 1984 Annual Energy Outlook (mid-case scenario), the following table shows the expected daily levels of net imports for 1985 through 1990 and 1995 and the equivalent number of days that the various size options could supply--assuming all oil could and would be drawn down.

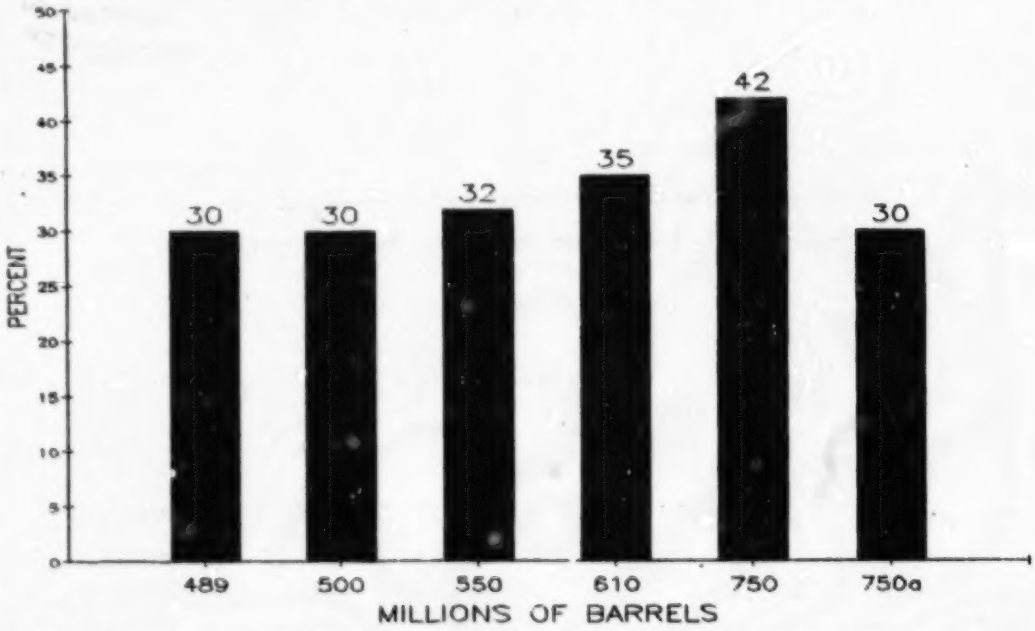
Year	Projected net oil imports[a]	SPR SIZE (MMB)					
		489	500	550	610	750	750[b]
1985	4.85	101	104	113	126	155	104
1986	5.11	96	98	107	119	147	98
1987	5.53	88	90	99	110	136	90
1988	5.95	82	84	92	103	126	84
1989	6.31	77	79	87	97	119	79
1990	6.59	74	76	83	93	114	76
1995	8.65	56	58	64	71	87	58

[a]Million barrels per day.

[b]Continued development but fill only to 500 million barrels.

As can be seen from the chart and table, a 489-million-barrel SPR would allow the United States to meet its IEA commitment from SPR inventory until 1986; 610 million barrels of oil would satisfy this commitment until 1990. A 750-million-barrel SPR would provide assurance until possibly 1994. EIA estimates that net oil imports in 1995 (annual data for 1991 through 1995 are not available) could be about 8.65 million barrels per day. By 1995, a 750-million-barrel reserve would provide about an 87-day supply of oil. A 500-million-barrel SPR would meet the 90-day requirement through 1987.

COMPARISON OF THE IMPACT EACH SPR INVENTORY OPTION HAS ON DAMPENING THE INCREASE IN OIL PRICES RESULTING FROM A SUPPLY DISRUPTION



a Reflects cavern development with only minimal oil fill to reach 500-MMB inventory

SPR PRICE-DAMPENING EFFECTS

Past oil supply disruptions have resulted in large oil price increases. It is generally accepted that the market would react in a similar fashion to future disruptions. To examine the potential impact on such price increases that a release of SPR oil into the market would have, we used a GAO-developed oil price model to simulate a disruption scenario. For modeling purposes, we assumed an 8-million-barrel-per-day disruption for 6 months, with a 3-million-barrel-per-day offset, for a net supply shortfall of 5 million barrels. Using a base case where no SPR oil was available, we developed a price path for oil supplies. We then ran a series of simulations in which the quantities of SPR oil available under the different size options were made available to the economy. Under the administration's proposed moratorium, we used a 3-million-barrel-per-day drawdown rate starting after the first month of the disruption and continued to withdraw oil until the reserve was depleted (into the seventh month under this scenario).

Comparing the oil price paths of the base case against the administration's proposal, we estimated that the SPR oil would serve to dampen the expected price increase by about 30 percent. In comparing the price-dampening effects of each SPR option, it is apparent that a larger reserve can have a more significant impact on price increases than a small reserve. For example, with a 750-million-barrel reserve, potential price increases could be reduced by 42 percent, or an additional 12 percent. The larger price-dampening effect occurs because the bigger reserve allows oil to be drawn down at a rate 50 percent greater than the 489-million-barrel reserve and extends the number of days the SPR oil would be available to offset supply shortages.

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